

Poisonous Fishes.

The question of poisoning by eating certain kinds of fishes is one not well understood, and there are several reasons why this is so. Grave and even fatal accidents of this nature have usually occurred in the less civilized portions of the globe; and the phenomenon itself is very complex. There are a large number of suspected species; and in some of these certain individuals alone seem to be possessed of the toxic property, and even in these the danger resulting from using them as food disappears at certain seasons of the year. Finally, ichthyology is such a difficult study that few physicians are well enough acquainted with the subject to accurately determine the genera or species of the poisonous fishes that they meet with in their travels. We translate and condense the following notes on this subject from the *Annales d'Hygiène Publique*:

In the medical report published by the Inspector General of Chinese Customs, residing at Peking, we find, among the maladies that afflict Europeans living in Japan, that of fish poisoning. The editor of the report, Dr. Stuart Eldridge, states that the salmon is doubtless the most common toxic fish of Japan. From the spring onward this fish is out of season, and if eaten after that period of the year occasions the same accidents as follow the eating of tainted meat. In Japan, the same dangers follow the eating of the *katsuo* (bonita) and the *maguro*, although the sickness they occasion is rarely fatal. A few strange symptoms have been observed, however, such as severe congestion of the brain and face, and nervous derangements difficult of explanation on the theory of the decomposition of the animal matter. In one case the cerebral disturbances were very serious. Several theories have been proposed to explain this remarkable property of the fishes. Some writers believe that it is a morbid element which is developed in the animals at certain seasons. But no such fatal element has as yet been discovered. Others think the idiosyncrasies of the patient have something to do with it. This explanation cannot be accepted; for if there is any idiosyncrasy about it, it exists in the fish and not in the consumer, since it has been proved that certain fishes—the *Lethrinus nambo*, for instance—can be eaten with impunity until it attains a certain size, say a length of 5 to 5½ inches, after which it becomes poisonous. The age of the fish, then, would seem to have something to do with its toxic qualities.

Fishes of very diverse genera have been the occasion of grave and even fatal accidents, and they are found in all parts of the globe, but more especially in the torrid zone. Pappenheim gives a list of more than forty poisonous species. Among these we find mackerels, perches, herrings, sea pikes, and a large number of species belonging to the order *Plectognathes*. The latter order contains five genera that are poisonous. The most common genus of the order in Japan is the *tetrodon* or swell fish, the species of which are all known by the general name of *fugu*, and are considered the most dangerous of the poisonous fishes, so much so, in fact, that their sale at certain seasons is forbidden by law. Dr. Goërtz, of Yokohama, in a memoir read before the German Asiatic Society of Japan, has given a description of the symptoms observed in these cases of poisoning by the *fugu*. One of these was rapidly fatal, the other two were more alarming, but recovered under prompt treatment. At the beginning of the attack there were violent headache and nausea, quickly followed by great muscular weakness; the pulse, the respiration, and temperature all fell at the same instant, thus denoting the very energetic action of the poison upon the nervous centers with special effect upon the pneumogastric. Dr. Houghton, of Savannah (*Lancet*, 1876, page 939), mentions thirteen cases of poisoning by the *Tetro-*

don hystrix—one of the Japanese *fugus*—in which the results were identical with those reported by Dr. Goërtz. It is somewhat remarkable that in the three cases given by the latter, and in the thirteen of Dr. Houghton, the subjects are stated to have eaten the eggs of the fish.

Congers, pikes, and barbels have long been recognized in Europe as poisonous at certain seasons, and the eggs of the barbel as especially so.

In Japan the liver of the *fugu*, immediately after the spawning season, is considered the most dangerous part of the fish. A few cases of death caused by eating the liver of the fish have also been reported from the Cape of Good Hope, the poison having proved fatal in some instances in less than seventeen minutes.

GIANT INSECTS.

The insect shown in the accompanying engraving is of

and fifteen inches long. The color of the insect is greenish-brown, and may be readily mistaken for the twigs of the shrubs on which it feeds.

The engraving, which we have taken from *La Nature*, is incorrect in one particular, the legs of the insect being somewhat shorter than is natural.

Railway Speeds.

The daily express mail train from London to Holyhead makes the distance, 268 miles, in 4½ hours, being at the speed of a little over 59 miles an hour, stoppages included. The distance between New York and Washington is 228 miles, and the fastest train makes it in 6 hours and 20 minutes, or 36 miles an hour, stops included. But most of the trains occupy from 8 to 9 hours.

In this wide country, where railway engineering exhibits such great triumphs, it would seem as if we ought to be able to run trains between our important cities as fast as the Britishers do. If we had a Holyhead express between New York and Washington, the time of transit would be reduced nearly one half, to wit, to 3 hours 40 minutes. This would enable passengers to leave New York in the morning, have an entire official day for business before the departments in Washington, or attend a session of Congress, and still be home again in time for the evening tea.

Ailantus Wood.

Persons who know the ailantus only as a shade tree, with its nauseous blossoms and uncouth growth, will be glad to learn that it possesses invaluable qualities of strength, durability, beauty of finish and color for carpentry and cabinet work, freedom from warping and shrinkage, ease of being worked without injury to tools and with little or no waste. It is a rapid growing tree, as all know, upon poor soils as well as good ones, in exposed situations on the sea coast, and in the interior. It seasons readily, and when dry is free from the unpleasant odor which characterizes the wood when green. It has a higher value as fuel than most of the wood in general use. Experiments made in the French dockyard at Toulon showed that the ailantus broke with a weight of 72,186 lb. where the elm yielded to a weight of 54,707 lb., and the oak to a weight of 43,434 lb. The small second growth is said to make very durable grape stakes, to which it seems well adapted. A set of furniture, made of this wood, has been in use in Providence, R. I., for about twenty years. It takes a high polish, and may be cut so as to present a satin luster which is very pleasing. It is regarded by some cabinet-makers as equal to mahogany and superior to black walnut in the matter of shrinking. For the treads of stairs, for floors of offices, mills, and other buildings, where a hard,



GIANT INSECT OF NEW GUINEA.—(*Keroerana Papuana*.)

such extraordinary dimensions as to justify the name of "giant among insects." It belongs to the family of *Phasmedæ* (specters), which are distinguished from grasshoppers and crickets by their long slender hind legs, which are adapted for walking and not for leaping.

Many of the phasmedæ are wingless, and when wings exist (in the males) their structure is very peculiar. The wing covers are quite small and useless for protecting the wings, which are broad and ample. The wings are plicated longitudinally in a multitude of folds, the folds being narrower toward the base and increasing regularly toward the edge, so that the wings close like a fan. The wings lie along the body of the insect, and in consequence of their many folds do not break the outline of the stick-shaped body. The outermost fold of the wing is stiff and strong, and when the wing is closed it protects the delicate folds of the wing in the same manner as a fan stick protects a fan.

Some of these insects are as thick as a man's thumb,

strong wood is required, it is regarded by many as superior to most of the woods thus employed. Its warm color makes it an effective finish when used with both lighter and darker woods, and as wainscoting is again becoming fashionable, the ease of producing this wood where other woods are not readily obtainable, will recommend this style of interior finish. The tree grows more rapidly when young than when it has attained considerable age.

Chloral in Whooping Cough.

Dr. C. H. Smith reports that in two hundred cases of this disease treated with chloral, he has in every case noticed a marked alleviation of the symptoms and shortening of the period of the disease. Only one case lasted seven weeks, and the majority of the cases were well in from two to six weeks. No other remedy was given.—*N. Y. Medical Journal*.

Hay Fever.

At the present time there are probably nearly 50,000 people suffering from what is called hay fever.

When this affection was first recognized it was supposed that it depended upon the irritation produced by the pollen of certain flowers and grasses which floated in the air in the months of May, June, July, and August of each year.

Subsequently it was claimed that two distinct forms of the disease existed, and to one was given the name of "June cold," while the other received the name "autumnal catarrh."

Further observation revealed the fact that an affection characterized by symptoms essentially the same as those seen in connection with hay asthma, hay fever, June cold, rose cold, autumnal catarrh, etc., occurred in seasons of the year in which none of the supposed exciting causes of the hay fever could operate, and for some time the reasoning was that it must be some other disease than that produced by the pollen of plants. It was also observed that certain persons were peculiarly affected when brought in contact with certain animals, such as the cat, and by the vapor from certain animal substances, such as warm milk. These observations, and others of like character, have from time to time led to modifications of former opinions regarding the nature of hay fever, and, at last, have given rise to a theory which has been promulgated as one capable of explaining all the phenomena of the disease whenever and wherever occurring.

In this country two books have been written on hay fever: one—the oldest, and for a long time the only systematic monograph upon the subject—by Dr. Jeffries Wyman, of Boston; the other by Dr. Geo. M. Beard, of New York. In Dr. Beard's book we find the first open announcement of the theory to which we have already referred, namely, the "nerve theory." This theory is the result of the study of one hundred cases, and it is that hay fever is a neurosis. According to this theory, the disease is subjective instead of objective; external irritants, which are exceedingly numerous, such as rag weed pollen, etc., are of a secondary and a tertiary character and powerless in themselves to produce the disease, and produce the disease only when acting on a nervous idiosyncrasy.

This author has described a new form of the disease, which he calls the July cold, or middle form, which links the early form, or June cold, with the later form, or autumnal catarrh. It seems to us that the nerve theory explains many of the cases which have heretofore been regarded as very obscure; for example, those in which the symptoms peculiar to hay fever have continued from May to November, or during the winter months, or all the year round. If the nerve theory be true—and it seems to be fairly sustained—it revolutionizes the treatment of the disease. It must be attacked from a new point of view; yet it cannot be successfully claimed that all cases are to be treated alike, or that any specific can be found for it. The remedies to be employed are those which are not painful—not even disagreeable. Of course, removal from the exciting cause is the primary factor in obtaining prompt relief; but, when this cannot be effected, the symptoms can be greatly relieved, and many cases cured, by such remedies as arsenic, nux vomica, carbolic acid, belladonna, tonics and sedatives, electricity, etc., and their combinations.—*Medical Record.*

Typhoid Fever from Diseased Meat.

An epidemic of typhoid fever, interesting in its etiology, followed a musical festival at Zurich, in May, 1878. Out of some 700 assistants, 500 were attacked by the disease, of whom 100 died. The symptoms could not be mistaken, and the autopsies confirmed the diagnosis. A minute inquiry into the circumstances left but little doubt that the epidemic was due to the use of bad veal furnished by an innkeeper of the place. It may be claimed by those who attribute to general causes the power of originating specific diseases, that the typhoid fever was due to a septic poison present in the veal, depending possibly on a beginning fermentation, which was not destroyed by the cooking to which it had been submitted. On the other hand, as the animal from which the meat was taken was sick, it may be asked whether it might not have been suffering from typhoid fever, although this disease has never yet been recognized among animals. It is a remarkable fact that in 1839 a similar but much less fatal epidemic occurred in a neighboring locality. After a reunion that took place under similar circumstances, 440 persons were taken sick with all the symptoms of typhoid fever. It is probable that in this case also the meat of a sick calf gave rise to the disease.—*Journal de Médecine.*

Ammoniacal Sulphate of Copper in Neuralgia.

Dr. Féréol having found several times obstinate cases of neuralgia of the fifth nerve, tic-douloureux, which had resisted a variety of other means, rapidly and completely cured by the administration of ammoniacal sulphate of copper, reports to the Académie de Médecine on the subject (*La France Médicale*, April 5th). The first case is that of a strong man, aged thirty-two, who had suffered so atrociously from terrible neuralgic crisis that on some days he was scarcely free for a few minutes at a time. Six teeth had been vainly extracted, and anti-neuralgic medication exhausted. He then tried ammoniacal sulphate of copper. The amelioration was considerable on the first day; on the second, the patient slept all night for the first time in two months; and at the end of ten days he left the hospital cured. A second case of supra-orbital neuralgia in a strong

young man, occurring every morning and ceasing at noon, had been vainly treated by leeching, blistering, and full doses of quinine. The ammoniacal sulphate of copper, given in a dose first of all of 0.10 and then 0.15 centigramme daily, produced an immediate amelioration of pain, and the patient described himself as cured. The medication was continued for a week, and the neuralgia did not return. Similar effects were obtained by M. Féréol in a lady, aged forty-three, delicate, nervous, but not hysterical, suffering from persistent right hemiparesis, with atrocious pain in the fifth pair of nerves, which drove her almost wild, and for which she had vainly tried quinine, aconite, morphia, hypodermic injections, etc. Similar results were obtained in an old man, aged sixty, suffering for eighteen months from a horribly painful neuralgia, starting from the nasal branch of the fifth, and in whom local and general treatment by the oldest of anodynes and antiperiodics had been vainly tried. In this case the results were not permanent, the patient having an invincible dislike to the sense of nausea produced by the sulphate of copper. The formula employed is the following: Distilled water, 100 grammes; sirup of orange flower or peppermint, 30 grammes; ammoniacal sulphate of copper, 0.10 to 0.15 centigramme, to be taken in the course of twenty-four hours, especially during food, in order to avoid irritating the stomach. In one patient, the dose was raised to 60 centigrammes a day without any other inconvenience than slight gastric pain and a little diarrhoea. The medium dose was 0.10 to 0.15 centigramme, which should be continued for from ten to fifteen days, even after the complete disappearance of the pains.—*London Medical Record.*

Late Views of the Age of the World.

Geologists, astronomers, and physicists alike have hitherto been baffled in their attempts to set up any satisfactory kind of chronometer which will approximately measure geological time, and thus give us some clew to the antiquity of our globe. It is therefore worth noting that Mr. Mellard Reade, of Liverpool, has lately contributed to the Royal Society a very suggestive paper, in which he endeavors to grapple with the question by employing the limestone rocks of the earth's crust as an index to geological time. Limestones have been in course of formation from the earliest known geological periods, but it would appear that the later found strata are more calcareous than the earlier, and that there has been a gradually progressive increase of calcareous matter. The very extensive deposition of carbonate of lime over wide areas of the ocean bottom at the present day is sufficiently attested by the recent soundings of the Challenger. According to the author's estimate, the sedimentary crust of the earth is at least one mile in average actual thickness, of which probably one-tenth consists of calcareous matter. In seeking the origin of this calcareous matter, it is assumed that the primitive rocks of the original crust were of the nature of granite or basaltic rocks. By the disintegration of such rocks, calcareous and other sedimentary deposits have been formed. The amount of lime salts in water which drain districts made up of granites and basalts is found, by a comparison of analyses, to be on an average about 3.73 parts in 100,000 parts of water. It is further assumed that the excessed areas of igneous rocks, taking an average throughout all geological time, will bear to the exposures of sedimentary rocks a ratio of about one to nine. From these and other data, Mr. Reade concludes that the elimination of the calcareous matter now found in all the sedimentary strata must have occupied at least 600,000,000 of years. This, therefore, represents the minimum age of the world. The author infers that the formation of the Laurentian, Cambrian, and Silurian strata must have occupied about 200,000,000 of years; the Old Red Sandstone, the Carboniferous, and the Poikilitic systems, another 200,000,000; and all the other strata, the remaining 200,000,000. Mr. Reade is, therefore, led to believe that geological time has been enormously in excess of the limits urged by certain physicists; that it has been ample to allow for all the changes which, on the hypothesis of evolution, have occurred in the organic world.—*London (Eng.) Academy.*

Engraving of Copper Rollers with Chromic Acid.

Copper printing rollers are engraved in two ways, only one of which is actually engraving proper, namely, the impression of the pattern by means of a steel die, a process which sometimes, as in the case of heavy furniture patterns, is supplemented by direct engraving with a graving tool by hand. The other plan frequently employed is etching, the substance of the copper being eaten away by the application of acids. This process gives very nice shading, and when judiciously employed is of much use.

Generally this method consists in covering the roller with a mastic or varnish, which protects the places which are not to be acted upon, and which leaves the pattern to be engraved open. The roller thus prepared is then plunged into a bath of nitric acid of 15° B., or stronger. Sometimes a little hydrochloric acid is added to favor the dissolving action of the acid. The operation generally takes not more than five or six minutes.

This process has grave inconveniences, especially in places where there is not a sufficiently strong ventilation to immediately carry off the fumes which are formed in large quantities. This free acid is not only dangerous for the workpeople, but, spreading in the room, soon affects the machines. There is also this drawback, that the acid acts underneath the varnish, resulting in unclean edges of the engraving.

A German chemist has for some time employed chromic acid in place of nitric acid, and from all accounts with very satisfactory results, especially in damp localities. The attack of this acid upon the metal is a little slower, but the engraving is sharper and clearer. The solution is the following: 5 oz. of commercial bichromate of potash are dissolved in 26 oz. hot water, after which 12 oz. sulphuric acid of 66° B. are carefully added, and the whole well mixed.

This bath gets brown by usage; if after a few days' use it becomes much so it must be thrown away. It is necessary, in order to obtain good results, to slightly heat the bath, which is done by placing the trough containing it into a bath of tepid water (?).

The cost of working with chromic acid is even cheaper than with nitric, and altogether it appears to have many qualities to recommend it to calico printers.

RECENT DECISIONS RELATING TO PATENTS, TRADE MARKS, ETC.**By the Commissioner of Patents.****GRAIN DRILLS.—BERLEW vs. BERLEW & SMITH.**

1. In courts of law judgment may be rendered upon admissions and stipulations of parties to actions involving purely private rights, and acts whereby one party induces another to adopt a course which would result in his detriment, unless the representations and promises involved in such acts are made good, present safe grounds for judicial decisions; but the law grants patents to first and original inventors, not to those who are conceded or admitted by others to be first and original inventors in the face of proof that they are not such; and parties cannot, by admissions or by concessions, or by acts constituting estoppels, determine the grant of patents in defiance of the facts. Subject to the modifications necessarily resulting from these differences in the subjects of adjudication, the rules of equitable estoppel apply in the Patent Office as in the courts.

2. If one or two joint applicants could by his acts estop himself from denying that the other was a joint inventor, the Commissioner would not by such an estoppel be authorized to declare the other a joint inventor when the facts showed that he was not; but he might be authorized to protect the other from fraud by making him a joint patentee.

By the Acting Commissioner of Patents.**BAG FASTENER.—MCKENNA vs. REDDEN.**

1. The applicant who conceived the idea of an invention in 1869, and from that time forward until 1876 simply had conversations about it and made one or two experimental models, then patented an invention of the same class, but of entirely different construction, held not to be the first and original inventor as against another who, although subsequent to conceive, had patented the invention in controversy, and put the same in extensive public practice a year before the former applicant had filed his application for a patent for the same invention.

2. It is a well settled doctrine that an inventor of a device must not only be the first inventor, but that he must also exercise diligence in reducing the same to practice in order to invalidate the title of a patentee, or to obtain a patent as against such a patentee, who, although subsequent to invent, was diligent in putting the invention before the public, while the one first to devise was making no effort to that end.

GLASS PATTERNS.—EX PARTE REES.

1. A mere change of material in the construction of a machine or an article, where the superiority attained is due alone to the nature of the material employed, unaccompanied by changes of adaptation, or useful results not before contemplated, is not invention.

2. A pattern made of glass, from which the vamps, quarters, and other parts of boots, shoes, etc., are cut, held patentable, in view of certain new and valuable results attained, notwithstanding the fact that such patterns had heretofore been made from paper, iron, brass-bound boards, etc.

A Caution about Shot in Game.

This being the season when game killed by shooting, and probably containing the pellets, is eaten, it may be worth while to caution those who consume the flesh of birds with avidity that the proportion of instances in which shot is found is probably small in comparison with the number of cases in which the pellets are unwittingly swallowed. It is a matter of speculation how much mischief a shot may do when passed into the intestines, but the fact that anomalous diseases have been set up by the presence of very small bodies which have become entangled in folds of the mucous membrane renders it desirable to put the public on their guard. Occasionally the most disastrous results have followed such small causes.

We have in recollection the case of a physician who died after prolonged and unexplained sufferings, from the impaction of a very small nail which had found its way into a pudding, and was inadvertently swallowed. A little care will avoid this contingency, but, remembering that the bird had been shot, some pains ought certainly to be taken to avoid swallowing the missile.—*Lancet.*

STEEL.—The production of steel effected by Great Britain last year was 807,527 tons. In the same year the United States made 732,226 tons of steel; Germany, 240,000 tons; France, 140,000 tons; Belgium, 75,000 tons; Sweden, 20,000 tons; and Austria, 25,000 tons. The aggregate steel production of the world was thus something over 2,000,000 tons last year.